

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 46131.WO01	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below	
International application No. PCT/GB2004/002303	International filing date (day/month/year) 28/05/2004	(Earliest) Priority Date (day/month/year) 30/05/2003
Applicant MARS, INCORPORATED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the International search was carried out on the basis of the International application in the language in which it was filed, unless otherwise indicated under this item.

☐ The International search was carried out on the basis of a translation of the International application furnished to this Authority (Rule 23 1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the International application, see Box No. I

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this International search report, submit comments to this Authority

6. With regards to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/002303

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C29/78 C07C31/26 C13F1/02 A23L1/09 A23L1/236

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A23G C07C C13F A23L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	EP 0 529 852 A (ICI AMERICA INC) 3 March 1993 (1993-03-03) claims; example 1 page 4, line 44 - page 5, line 7 -----	1-5,8,9, 18
X	WO 99/59426 A (GROS HAAKAN ;NYGREN JOHANNA (FI); XYROFIN OY (FI); EROMA OLLI PEKK) 25 November 1999 (1999-11-25) claims; examples 1,3 -----	1-5,18
Y	GB 1 481 846 A (ROQUETTE FRERES) 3 August 1977 (1977-08-03) page 1, line 60 - line 81; claims page 2, line 115 - line 119 page 2, line 129 - page 3, line 7 ----- -/--	1-16,18



Further documents are listed in the continuation of box C



Patent family members are listed in annex

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

& document member of the same patent family

Date of the actual completion of the international search

28 September 2004

Date of mailing of the international search report

05/10/2004

Name and mailing address of the ISA

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Authorized officer

Tallgren, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2004/002303

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	EP 1 072 578 A (VOMM CHEMIPHARMA SRL) 31 January 2001 (2001-01-31) paragraphs '0058!', '0059!; claims 1-3; figure 1 -----	1-16,18
A	GB 1 287 509 A (TOWA KASEI KOGYO) 31 August 1972 (1972-08-31) claims; examples -----	1-18
A	US 5 980 640 A (ERIKSSON KRISTIAN ET AL) 9 November 1999 (1999-11-09) claims 1,15,21,37,38; examples 5,8 -----	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/002303

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0529852	A	03-03-1993	US 5139795 A	18-08-1992
			AU 662003 B2	17-08-1995
			AU 2082892 A	11-02-1993
			CA 2075458 A1	10-02-1993
			EP 0529852 A1	03-03-1993
			FI 923552 A	10-02-1993
			IE 922508 A1	10-02-1993
			JP 6172234 A	21-06-1994
			NO 923104 A	10-02-1993
WO 9959426	A	25-11-1999	FI 981104 A	19-11-1999
			AT 246666 T	15-08-2003
			AU 752693 B2	26-09-2002
			AU 4147599 A	06-12-1999
			BR 9910552 A	30-01-2001
			CA 2332600 A1	25-11-1999
			CN 1309626 T	22-08-2001
			DE 69910199 D1	11-09-2003
			DE 69910199 T2	19-02-2004
			DK 1080060 T3	17-11-2003
			EP 1080060 A2	07-03-2001
			ES 2204131 T3	16-04-2004
			WO 9959426 A2	25-11-1999
			JP 2002515407 T	28-05-2002
			US 6764706 B1	20-07-2004
GB 1481846	A	03-08-1977	FR 2202867 A1	10-05-1974
			BE 818090 A1	27-01-1975
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EP 1072578	A	31-01-2001	IT MI991721 A1	30-01-2001
			AT 251102 T	15-10-2003
			BR 0003219 A	08-10-2002
			CA 2314681 A1	30-01-2001
			DE 60005612 D1	06-11-2003
			DE 60005612 T2	05-08-2004
			EP 1072578 A1	31-01-2001
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			US 6416585 B1	09-07-2002
GB 1287509	A	31-08-1972	JP 52020444 B	03-06-1977
			BE 759609 A1	30-04-1971
			CH 520638 A	31-03-1972
			DE 2059246 A1	01-07-1971
			FR 2072535 A5	24-09-1971
US 5980640	A	09-11-1999	FI 97625 B	15-10-1996
			AT 407529 B	25-04-2001
			AT 39596 A	15-08-2000
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			AT 211508 T	15-01-2002
			AU 4832596 A	18-09-1996
			AU 715278 B2	20-01-2000
			AU 4832696 A	18-09-1996
			BR 9607438 A	26-05-1998
			CA 2214443 A1	06-09-1996
			CA 2214444 A1	06-09-1996
			CN 1179797 A , B	22-04-1998

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/002303

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5980640	A	CN 1180381 A , B	29-04-1998
		CZ 9702724 A3	17-12-1997
		DE 69616533 D1	06-12-2001
		DE 69616533 T2	02-05-2002
		DE 69618674 D1	28-02-2002
		DE 69618674 T2	14-08-2002
		EP 0820527 A1	28-01-1998
		EP 1019547 A1	19-07-2000
		ES 2166877 T3	01-05-2002
		ES 2173268 T3	16-10-2002
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		WO 9627028 A1	06-09-1996
		WO 9627029 A1	06-09-1996
		HU 9800266 A2	29-06-1998
		JP 11500912 T	26-01-1999
		JP 11500913 T	26-01-1999
		NO 973813 A	03-11-1997
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		PL 322029 A1	05-01-1998
		RU 2184148 C2	27-06-2002
		RU 2177038 C2	20-12-2001
		TR 9700885 T1	21-01-1998
		US 6086681 A	11-07-2000
		ZA 9601677 A	06-09-1996

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No
PCT/GB2004/002303

International filing date (day/month/year)
28.05.2004

Priority date (day/month/year)
30.05.2003

International Patent Classification (IPC) or both national classification and IPC
C07C29/78, C07C31/26, C13F1/02, A23L1/09, A23L1/236

Applicant
MARS, INCORPORATED

1 This opinion contains indications relating to the following items:

- ☒ Box No I Basis of the opinion
- ☒ Box No II Priority
- ☐ Box No III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No IV Lack of unity of invention
- ☒ Box No V Reasoned statement under Rule 43bis 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No VI Certain documents cited
- ☐ Box No VII Certain defects in the international application
- ☐ Box No VIII Certain observations on the international application

2 FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220

3 For further details, see notes to Form PCT/ISA/220

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No
PCT/GB2004/002303

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23 1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/002303

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis* 1 and 66.7(a))

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis* 1 and 66.7(b))

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Statement

Novelty (N)	Yes: Claims	2-17
	No: Claims	1,18
Inventive step (IS)	Yes: Claims	
	No: Claims	1-18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

ITEM V

1. The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1: EP-A-0 529 852 (ICI AMERICA INC) 3 March 1993 (1993-03-03)
- D2: WO 99/59426 A (GROS HAAKAN ;NYGREN JOHANNA (FI); XYROFIN OY (FI); EROMA OLLI PEKK) 25 November 1999 (1999-11-25)
- D3: GB-A-1 481 846 (ROQUETTE FRERES) 3 August 1977 (1977-08-03)
- D4: EP-A-1 072 578 (VOMM CHEMIPHARMA SRL) 31 January 2001 (2001-01-31)

2. NOVELTY OBJECTIONS

D1 describes a process for continuous making of crystallised xylitol in an agitated container the walls of which are maintained between 80 and 120 C, by continuous feeding a xylitol syrup and a crystallised or powdered xylitol (claims, example 1, page 4 line 44- page 5 line 7). Consequently, the subject matter of claims 1 and 18 is considered as being not new in view of D1 (Art 33 (2) PCT).

D2 describes a process for continuous making of crystallised xylitol in an agitated container the walls of which are maintained between 80 and 120 C, by continuous feeding a xylitol syrup and a crystallised or powdered xylitol (claims, examples 1,3). Consequently, the subject matter of claims 1 and 18 is considered as being not new in view of D2 (Art 33 (2) PCT).

3. INVENTIVE STEP OBJECTIONS

Dependent claims 2-17 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty or inventive step, the reasons being as follows:

The features of dependent claims 2-16 have already been employed for the same purpose (see documents D1,D2 for claims 2-5,8,9, D3,D4 for claims 2-16). It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect. Consequently, the subject matter of claims 2-16 is considered as being not inventive in view of D1-D4 (Art 33(3) PCT).

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/002303

In claims 17 a slight change in the claim 1 is defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject matter of claim 17 is considered as being not inventive (Art 33(3) PCT).

None of the claimed processes are considered to be inventive in view of D1-D4 (Art 33(3) PCT). Having regard to the claimed processes and the prior art known (D1-D4), it is considered that the man skilled in the art would regard these processes of the present invention (as far as novel) as an obvious alternative to those known. Therefore, unless an unexpected effect for the present processes (as far as novel) over the prior art disclosure from D1-D4 can be demonstrated, these processes do not fulfill the requirements of Art 33(3) PCT.